Claims: Claims 20-23 are amended and no claims are canceled in this office action response. Additions are indicated by underlining. Deletions are indicated by strikethroughs. Claims 24 and 25 have been canceled without waiver or disclaimer of the subject matter of these claims. Upon entry of this amendment, claims 1-3, 5-7, 9-10, and 12-23 will be pending.

Listing of Claims:

1. (previously presented) A method comprising:

determining at least one of a temperature and a firing resistance of a thermal fluid-ejection nozzle as the fluid-ejection nozzle is fired, comprising one or more of:

determining a firing resistance profile over voltage as the fluid-ejection nozzle is fired;

measuring the firing resistance of the fluid-ejection nozzle over time and indirectly measuring the temperature of the fluid-nozzle as proportional to the firing resistance of the fluid-ejection nozzle;

indirectly measuring the temperature and the firing resistance of the fluid-ejection nozzle by determining a voltage of the fluid-ejection nozzle over time; and,

determining whether the fluid-ejection nozzle ejected fluid upon firing based on the at least one of the temperature and the firing resistance of the fluid-ejection nozzle.

2. (original) The method of claim 1, wherein determining the at least one of the temperature and the firing resistance of the fluid-ejection nozzle comprises determining at least one of a temperature profile and a firing resistance profile

over time as the fluid-ejection nozzle is fired.

3. (original) The method of claim 2, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises:

comparing the at least one of the temperature profile and the firing resistance profile to a predetermined profile of a clogged fluid-ejection nozzle and a predetermined profile of an unclogged fluid-ejection nozzle;

where the at least one of the temperature profile and the firing resistance profile match the predetermined profile of the clogged fluid-ejection nozzle, concluding that the fluid-ejection nozzle failed to eject the fluid upon firing; and,

where the at least one of the temperature profile and the firing resistance profile match the predetermined profile of the unclogged fluid-ejection nozzle, concluding that the fluid-ejection nozzle ejected the fluid upon firing.

4. (canceled)

5. (previously presented) The method of claim 1, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises:

comparing the firing resistance profile to a predetermined profile of a clogged fluid-ejection nozzle and a predetermined profile of an unclogged fluid-ejection nozzle;

where the firing resistance profile matches the predetermined profile of the clogged fluid-ejection nozzle, concluding that the fluid-ejection nozzle failed to eject the fluid upon firing; and,

where the firing resistance profile matches the predetermined profile of the unclogged fluid-ejection nozzle, concluding that the fluid-ejection nozzle ejected the fluid upon firing.

6. (original) The method of claim 1, wherein determining at least one of the temperature and the firing resistance of the fluid-ejection nozzle comprises measuring the temperature of the fluid-ejection nozzle over time.

7. (original) The method of claim 6, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises:

determining a transition temperature of the fluid-ejection nozzle of fluid nucleation based on the temperature of the fluid-ejection nozzle;

determining whether a time at which the transition temperature of the fluid-ejection nozzle occurs exceeds a threshold; and,

where the time at which the transition temperature occurs exceeds the threshold, concluding that the fluid-ejection nozzle failed to eject the fluid upon firing; and,

otherwise concluding that the fluid-ejection nozzle ejected the fluid upon firing.

8. (canceled)

9. (previously presented) The method of claim 1, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises:

determining whether the firing resistance of the fluid-ejection nozzle at a predetermined time after firing exceeds a threshold;

where the firing resistance at the predetermined time after firing exceeds the threshold, concluding that the fluid-ejection nozzle failed to eject the fluid upon firing; and,

otherwise concluding that the fluid-ejection nozzle ejected the fluid upon firing.

10. (previously presented) The method of claim 1, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises determining refill time of a chamber of the fluid-ejection nozzle after two or more firing pulses and concluding that the fluid-ejection nozzle failed to eject the fluid upon firing where the refill time is greater than a threshold.

11. (canceled)

12. (previously presented) The method of claim 1, wherein determining whether the fluid-ejection nozzle ejected fluid upon firing comprises:

determining whether the voltage of the fluid-ejection nozzle at a predetermined time after firing exceeds a threshold;

where the voltage at the predetermined time after firing exceeds the threshold, concluding that the fluid-ejection nozzle failed to eject the fluid upon firing; and,

otherwise concluding that the fluid-ejection nozzle ejected the fluid upon firing.

13. (original) The method of claim 1, where the fluid-ejection nozzle is an inkjet-printing nozzle and the fluid is ink.

14. (original) A computer-readable medium having a computer program stored thereon to perform a method comprising:

determining a firing resistance profile of a thermal fluid-ejection nozzle over voltage as the fluid-ejection nozzle attempts to eject fluid;

comparing the firing resistance profile to a predetermined profile of a clogged fluid-ejection nozzle and a predetermined profile of an unclogged fluid-ejection nozzle;

where the firing resistance profile matches the predetermined profile of the clogged fluid-ejection nozzle, determining that the fluid-ejection nozzle failed to eject the fluid; and,

where the firing resistance profile matches the predetermined profile of the unclogged fluid-ejection nozzle, determining that the fluid-ejection nozzle ejected the fluid.

15. (original) The medium of claim 14, where the fluid-ejection nozzle is an inkjet-printing nozzle and the fluid is ink.

16. (original) A computer-readable medium having a computer program stored thereon to perform a method comprising:

measuring a temperature of a fluid-ejection nozzle over time as the fluid-ejection nozzle attempts to eject fluid;

determining a transition temperature of the fluid-ejection nozzle of fluid nucleation based on the temperature of the fluid-ejection nozzle as measured over time;

determining whether a time at which the transition temperature of the fluid-ejection nozzle occurs exceeds a threshold;

where the time at which the transition temperature occurs exceeds the threshold, concluding that the fluid-ejection nozzle failed to eject the fluid; and,

otherwise concluding that the fluid-ejection nozzle ejected the fluid.

17. (original) The medium of claim 16, where the fluid-ejection nozzle is an inkjet-printing nozzle and the fluid is ink.

18. (original) A computer-readable medium having a computer program stored thereon to perform a method comprising:

determining a voltage of a fluid-ejection nozzle over time as the fluid-ejection nozzle attempts to eject fluid;

determining whether the voltage of the fluid-ejection nozzle at a predetermined time after the fluid-ejection nozzle began to attempt to eject the fluid exceeds a threshold;

where the voltage at the predetermined time exceeds the threshold, concluding that the fluid-ejection nozzle failed to eject the fluid; and,

otherwise concluding that the fluid-ejection nozzle ejected the fluid.

19. (original) The medium of claim 18, where the fluid-ejection nozzle is an inkjet-printing nozzle and the fluid is ink.

20. (currently amended) A thermal fluid-ejection device comprising:

at least one thermal fluid-ejection mechanism, each fluid-ejection mechanism having a plurality of thermal fluid-ejection nozzles; and,

a mechanism to ~~determine whether any of the plurality of fluid-ejection nozzles of any of the at least one fluid-ejection mechanism has clogged~~ compare a predetermined profile of firing resistance over voltage to individual of profiles of firing resistance over voltage determined for corresponding of the plurality of thermal fluid-ejection nozzles to detect clogging ~~without having to interrupt intended fluid ejection by the at least one fluid-ejection mechanism~~.

21. (currently amended) The device of claim 20, wherein ~~the mechanism is to determine whether any of the plurality of fluid-ejection nozzles of any of the at least one fluid-ejection mechanism has clogged by measuring a temperature of each fluid-ejection nozzle over time as the fluid-ejection nozzle is fired~~ each fluid-ejection mechanism is an inkjet-printing mechanism having a plurality of inkjet-printing nozzles, such that the fluid-ejection device is an inkjet-printing device.

22. (currently amended) A thermal fluid-ejection device comprising:

at least one thermal fluid-ejection mechanism, each fluid-ejection mechanism having a plurality of thermal fluid-ejection nozzles; and, ~~The device of claim 20, wherein the~~ a mechanism ~~is~~ to determine whether any of the plurality of fluid-ejection nozzles of ~~any of~~ the at least one fluid-ejection mechanism has clogged by determining a voltage of each fluid-ejection nozzle over time as the fluid-ejection nozzle is fired.

23. (currently amended) The device of claim 22 ~~20~~, wherein each fluid-ejection mechanism is an inkjet-printing mechanism having a plurality of inkjet-printing nozzles, such that the fluid-ejection device is an inkjet-printing device.

24. (canceled)

25. (canceled)